Amendments to the Specification:

Please replace paragraph [0007] with the following amended paragraph:

[0007] US Patent No. 6,424,259 issued to Gagnon and US Patent No. 4,536,752 issued to Cheal both describe intrusion detection systems which include open transmission line sensors coupled to discrete antennas or receivers which are spaced along the transmission line. These intrusion detection systems each provide an array of sensing zones which are created by coupling a generally single radio frequency signal generated by a central transmitter or receiver from the cable onto the array of antennae. While the intrusion detection systems described by Gagnon and Cheal can be used in perimeter applications, each system has limited detection features.

Please replace paragraph [0011] with the following amended paragraph:

[0011] The present invention relates to a sensor array for an intrusion detection system. According to the present invention, the sensor array includes one or more sensor nodes that are each connected to an array processor. Each sensor node includes one or more discrete sensors, which are classified as volumetric sensors or non-volumetric sensors. The discrete volumetric sensors each have an associated volumetric intrusion detection field extending therefrom and are constructed and arranged to generate a response to an intruder entering its detection field. Each sensor node in the sensor array has a detection zone defined by the effective detection fields of its constituent sensors as constructed and arranged in each sensor node. The array processor is coupled to each sensor node for generating information based on processing of the response generated from the detection zone of each sensor node. Whenever an intruder enters the detection zone of a sensor node, one or more of the discrete sensors of the sensor node generates a response representative of the presence of an intruder. An array processor receives the response in the form of a response signal. The array processor signal processes the response received from each discrete sensor and generates an alarm disturbance signature.

Please replace paragraph [0018] with the following amended paragraph:

[0018] In a first aspect the present invention provides a ~~sensor array forming part of an intrusion detection system comprising: a sensor array forming part of an intrusion detection system, the sensor array comprising: at least one sensor node, each sensor node having a longitudinal axis and providing a detection zone defined by a plane extending transverse to the longitudinal axis, and having at least one discrete sensor for generating a response to an intruder entering the detection zone of the sensor node; and an array processor for generating information based on processing of each response, the array processor being coupled to each of the sensor nodes. A~~ sensor array forming part of an intrusion detection system and having a plurality of discrete volumetric sensors each having an associated volumetric intrusion detection field extending therefrom and constructed and arranged to generate a response to an intruder entering its detection field, the sensor array comprising: a plurality of sensor nodes each having at least one volumetric sensor and having a detection zone defined by the effective detection fields of its constituent sensors as constructed and arranged in each sensor node, at least one of the sensor nodes having at least two volumetric sensors; and an array processor coupled to each sensor node for generating information based on processing of the response generated from the detection zone of each sensor node.

Please replace paragraph [0019] with the following amended paragraph:

[0019] In a second aspect the present invention provides a ~~sensor array forming part of an intrusion detection system comprising: at least one sensor node, each sensor node having a longitudinal axis and providing a detection zone defined by a plane extending transverse to the longitudinal axis of the sensor array, and having: at least one discrete sensor for generating a response to an intruder entering the detection zone of the sensor node; and a node processor for generating an alarm disturbance signature based on the response generated by the sensor node, the node processor being coupled to each discrete sensor; and an array processor for generating information based on the alarm disturbance signature received from each node processor, the array processor being coupled to the~~

~~node processor of each sensor node. A~~ sensor array forming part of an intrusion detection system and having a plurality of discrete volumetric sensors each having an associated volumetric intrusion detection field extending therefrom and constructed and arranged to generate a response to an intruder entering its detection field, the sensor array comprising: (i) a plurality of sensor nodes each sensor node having at least one volumetric sensor and having a detection zone defined by the effective detection fields of its constituent sensors as constructed and arranged in each sensor node, at least one of the sensor nodes having at least two volumetric sensors, and each sensor node having a node processor for generating an alarm disturbance signature based on the response generated each volumetric sensor of the sensor node, the node processor being coupled to each volumetric sensor; and (ii) an array processor for generating information based on the alarm disturbance signature received from each node processor, the array processor being coupled to the node processor of each sensor node.

Please replace paragraph [0020] with the following amended paragraph:

[0020] In a third aspect, the present invention provides an ~~intrusion detection system comprising: at least one sensor array having: at least one sensor node, each sensor node having a longitudinal axis and providing a detection zone defined by a plane extending transverse to the longitudinal axis, and having: at least one discrete sensor for generating a response to an intruder entering the detection zone of the sensor node; and a node processor for generating alarm disturbance signature based on the response received from each discrete sensor, the node processor being coupled to each discrete sensor; and an array processor for generating information based on the alarm disturbance signature received from each node processor, the array processor being coupled to the node processor of each senor node; a calibration means for adjusting the sensitivity setting of each discrete sensor; and a system processor for processing the information received from the array processor and for generating an alarm condition; wherein the calibrating means is coupled to the system processor, and wherein the system processor is coupled to each sensor array. An~~ intrusion detection system comprising: (I) at least one sensor array having a plurality of discrete volumetric sensors each having an associated volumetric

intrusion detection field extending therefrom and constructed and arranged to generate a response to an intruder entering its detection field, the system having: (i) a plurality of sensor nodes each sensor node having at least one volumetric sensor and having a detection zone defined by the effective detection fields of its constituent sensors as constructed and arranged in each sensor node, at least one of the sensor nodes having at least two volumetric sensors, and each sensor node having a node processor for generating an alarm disturbance signature based on the response generated each volumetric sensor of the sensor node, the node processor being coupled to each volumetric sensor; and (ii) an array processor for generating information based on the alarm disturbance signature received from each node processor, the array processor being coupled to the node processor of each sensor node; (II) a calibration means for adjusting the sensitivity setting of each discrete sensor; and (III) a system processor for processing the information received from the array processor and for generating an alarm condition; wherein the calibrating system is coupled to the system controller, and wherein the system controller is coupled to each sensor array.

Please replace paragraph [0032] with the following amended paragraph:

[0032] It should be mentioned that there is no limitation on the number of discrete sensors that may be contained within a particular sensor node, nor the number of sensor nodes located within a sensor array. Furthermore, in the preferred embodiment of the invention, the distance between sensor nodes **10a, 10b, ...,10n** may be selected based on several factors such as the type of intruder to be detected, the orientation of an intruder relative to the detection zone of a sensor node (where the detection zone is defined by the effective detection fields of its constituent sensors as constructed and arranged in each sensor node), the detection field of a particular discrete sensor, the range of detection of the sensor nodes, and whether the detection zones of the sensor nodes are to overlap. For example, in the embodiment of the invention in which the sensor array is mounted on a wall-top, the sensor nodes may be spaced 0.75m apart and have detection zones that span 90 degrees in the plane transverse to each sensor node. In this embodiment, a human intruder who enters a detection zone transversely would always be detected. In the

embodiment of the invention where the sensor arrays are mounted horizontally on the side of a wall, as shown in **FIGURE 4**, to detect an intruder approaching the perimeter the sensor nodes may be spaced 20m apart, their detection zones may extend a distance of 20 meters and their detection zones may span 90 degree in the plane transverse to each sensor node. In the embodiment of the invention where the sensor array may be mounted vertically on a wall, the sensor nodes may be spaced apart by 2.5 m. In the preferred embodiment, the sensor nodes may be spaced 0.~~5~~25-20.0 meters apart.

Please replace paragraph [0043] with the following amended paragraph:

[0043] According to an embodiment of the present invention, the sensor, for example **100a, 101a** of **FIGURE 1**, may be commercially available discrete sensors or modules selected for their detection properties. For example, the discrete sensors may be microwave modules such as microwave doppler modules or transceivers, stereo doppler modules, FM doppler radar modules, or VCO modules. The discrete sensors may also be ultrasonic transducers such as pulsed or continuous transducers that provide range or doppler signals, or the discrete sensors may be passive infrared (IR) sensors, or active (reflective) IR sensors. In addition, the various types of discrete sensors **100a, 101a, ...**, may be combined within any sensor node **10a, 10b, ...10n**. The discrete sensors are selected for their phenomenology and specific detection features, such as detection field size, shape, and parameter. For the purposes of this document, discrete sensors are classified as either being volumetric sensors or non-volumetric sensors. Volumetric sensors are defined as each having an associated volumetric detection field. This is in contrast to non-volumetric sensors which are defined as having linear or planar detection fields, such as touch or contact sensors. The combination of various types of discrete sensors provides each sensor node with different detection features. For example, a fixed frequency doppler microwave which provides intruder magnitude and velocity response may be combined with a pulsed ultrasonic transducer which can provide intruder range. Such a doppler microwave, by itself, is not capable of differentiating between a large intruder far away from the perimeter under surveillance and a small intruder close to the perimeter, such as a bird landing. Therefore, the addition of a second discrete sensor with

a different phenomenology, such as a pulsed ultrasonic sensor, gives the intruder range information as well as assisting in intruder classification. The combination of discrete sensor phenomenologies to assess target features, and processing the signatures from each node of the sensor array, facilitates the differentiation between nuisance sources and the environment.